Material Safety Data Sheet

Section 1. Chemical Product and Company Identification

Common Name/Trade Name: Tributyl Tin Chloride

Manufacturer: SPECTRUM LABORATORY PRODUCTS INC.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

Commercial Name(s): Not available.

Synonym: Chlorotributylstannane; Monochlorotributyltin; Stannane, tributylchlooro-Tin, tri-n-butyl chloride; Tributylchlorotin Tritylbutylstannium chloride; Tributyldistannyl chloride; Tributyltin chloride; Tin, tri-n-butyl, chloride; Tri-n-butylin chloride; Tributyltin-chloride

Chemical Name: Stannane, chlorotributyl-

Chemical Family: Not available.

Chemical Formula: C12-H27-Cl-Sn

Supplier: SPECTRUM LABORATORY PRODUCTS INC.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

Section 2. Composition and Information on Ingredients

Name: 1) Tributyl Tin Chloride

CAS #: 1461-22-9

Exposure Limits

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS #</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
<th>CEIL (mg/m³)</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Tributyl Tin Chloride</td>
<td>1461-22-9</td>
<td>0.1</td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

Toxicological Data on Ingredients: Tributyl Tin Chloride:

ORAL (LD50): Acute: 129 mg/kg [Rat], 60 mg/kg [Mouse], 147 mg/kg [Hamster].

Section 3. Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Severe over-exposure can result in death.

Potential Chronic Health Effects: CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal) by ACGIH.

Continued on Next Page
### Section 4. First Aid Measures

#### Eye Contact
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

#### Skin Contact
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

#### Serious Skin Contact
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

#### Inhalation
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

#### Serious Inhalation
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

#### Ingestion
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

#### Serious Ingestion
Not available.

### Section 5. Fire and Explosion Data

#### Flammability of the Product
May be combustible at high temperature.

#### Auto-Ignition Temperature
>150°C (302°F)

#### Flash Points
CLOSED CUP: >112°C (233.6°F).

#### Flammable Limits
Not available.

#### Products of Combustion
These products are carbon oxides (CO, CO2), halogenated compounds.

#### Fire Hazards in Presence of Various Substances
Slightly flammable to flammable in presence of open flames and sparks, of heat.

#### Explosion Hazards in Presence of Various Substances
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

#### Fire Fighting Media and Instructions
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

#### Special Remarks on Fire Hazards
When heated to decomposition it emits toxic fumes of hydrogen chloride, carbon monoxide, carbon dioxide, tin/tin oxides.

#### Special Remarks on Explosion Hazards
Not available.

### Section 6. Accidental Release Measures

#### Small Spill
Absorb with an inert material and put the spilled material in an appropriate waste disposal.

#### Large Spill
Poisonous liquid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

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Section 7. Handling and Storage

Precautions
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

Storage
Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8. Exposure Controls/Personal Protection

Engineering Controls
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the workstation location.

Personal Protection
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits
TWA: 0.1 STEL: 0.2 \(\text{mg(Sn)/m}^3\) from ACGIH (TLV) [United States]
TWA: 0.1 \(\text{mg(Sn)/m}^3\) from OSHA (PEL) [United States]
TWA: 0.1 \(\text{mg(Sn)/m}^3\) from NIOSH [United States]
TWA: 0.1 STEL: 0.2 \(\text{mg(Sn)/m}^3\) [United Kingdom (UK)]

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance
Liquid.

Molecular Weight
325.49 g/mole

pH (1% soln/water)
Not applicable.

Boiling Point
171°C (339.8°F) 173 C. @ 25 mm Hg.

Critical Temperature
-9°C (15.8°F)

Specific Gravity
1.2 (Water = 1)

Vapor Pressure
Not available.

Vapor Density
11.2 (Air = 1)

Volatility
Not available.

Odor Threshold
Not available.

Water/Oil Dist. Coeff.
The product is more soluble in oil; log(oil/water) = 4.8

Ionicity (in Water)
Not available.

Dispersion Properties
Not available.

Solubility
Insoluble in cold water.
Soluble in common organic solvents, including alcohol, heptane, benzene, toluene.
Insoluble in cold water, but hydrolyzes in hot water.

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Section 10. Stability and Reactivity Data

<table>
<thead>
<tr>
<th>Stability</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instability Temperature</td>
<td>Not available.</td>
</tr>
<tr>
<td>Conditions of Instability</td>
<td>Excess heat, incompatible materials.</td>
</tr>
<tr>
<td>Incompatibility with various substances</td>
<td>Reactive with oxidizing agents</td>
</tr>
<tr>
<td>Corrosivity</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

| Special Remarks on Reactivity | Not available. |
| Special Remarks on Corrosivity | Not available. |
| Polymerization               | Will not occur. |

Section 11. Toxicological Information

<table>
<thead>
<tr>
<th>Routes of Entry</th>
<th>Absorbed through skin. Eye contact. Inhalation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to Animals</td>
<td>Acute oral toxicity (LD50): 60 mg/kg [Mouse].</td>
</tr>
<tr>
<td>Chronic Effects on Humans</td>
<td>CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast.</td>
</tr>
<tr>
<td>Other Toxic Effects on Humans</td>
<td>Hazardous in case of skin contact (irritant), of ingestion, of inhalation.</td>
</tr>
<tr>
<td>Special Remarks on Toxicity to Animals</td>
<td>Lethal Dose/Conc 50% Kill: LD50[Rabbit] - Route: Oral; Dose: 30 ug/kg</td>
</tr>
<tr>
<td>Special Remarks on Chronic Effects on Humans</td>
<td>May cause adverse reproductive effects and birth defects (teratogenic) May affect genetic material (mutagenic)</td>
</tr>
<tr>
<td>Special Remarks on other Toxic Effects on Humans</td>
<td>Acute Potential Health Effects: Skin: Causes skin irritation. Eyes: Causes moderate to severe eye irritation. Inhalation: Inhalation of mist or vapor may cause respiratory tract irritation. Ingestion: Harmful if swallowed. May cause anorexia, nausea, vomiting, diarrhea. May affect behavior/central nervous system/peripheral nervous system (ataxia, tremor, local anesthetic). Chronic Potential Health Effects: Ingestion: Prolonged or repeated ingestion may cause weight loss. It may also affect the spleen, thymus, respiration (respiratory depression). Skin: Prolonged or repeated skin contact may cause dermatitis.</td>
</tr>
</tbody>
</table>

Section 12. Ecological Information

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD5 and COD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Products of Biodegradation</td>
<td>Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.</td>
</tr>
<tr>
<td>Toxicity of the Products of Biodegradation</td>
<td>The products of degradation are as toxic as the product itself.</td>
</tr>
<tr>
<td>Special Remarks on the Products of Biodegradation</td>
<td>Tributyl tin compounds are extremely toxic to marine life.</td>
</tr>
</tbody>
</table>

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Section 13. Disposal Considerations

Waste Disposal
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14. Transport Information

DOT Classification
CLASS 6.1: Poisonous material.

Identification
UNNA: 2788: Organotin compound, liquid, n.o.s. (Chlorotributyltin) PG: III

Special Provisions for Transport
Not available.

DOT (Pictograms)

Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations
TSCA 8(b) inventory: Tributyl Tin Chloride

California Proposition 65 Warnings
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found.

Other Regulations
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 215-958-7).
Canada: Listed on Canadian Domestic Substance List (DSL).
China: Listed on National Inventory.
Japan: Listed on National Inventory (ENCS).
Korea: Listed on National Inventory (KECI).
Philippines: Listed on National Inventory (PICCS).
Australia: Listed on AICS.

Other Classifications
WHMIS (Canada) CLASS D1B: Material causing immediate and serious toxic effects (TOXIC).
CLASS D2B: Material causing other toxic effects (TOXIC).

DSCL (EEC)
R25- Toxic if swallowed.
R36/38- Irritating to eyes and skin.
R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S60- This material and its container must be disposed of as hazardous waste.
S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

National Fire Protection Association (U.S.A.)
Health Hazard: 2
Fire Hazard: 1
Reactivity: 0
Specific Hazard: h

Continued on Next Page
Protective Equipment

- Gloves
- Lab coat.
- Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- Wear appropriate respirator when ventilation is inadequate.
- Splash goggles.

Section 16. Other Information

**MSDS Code**

T0210

**References**

Not available.

**Other Special Considerations**

Major Uses: Intermediate; rodenticide, rodent-repellent cable coating; industrial biocide; in agricultural chemicals, wood preservatives, and marine antifoulants.

Use of tributyltin compounds in antifoulants is restricted because of toxicity to aquatic organisms and the EPA is cooperating in international efforts for global phase-out.

Validated by Sonia Owen on 11/13/2008.

Verified by Sonia Owen.

Printed 12/2/2008.

CALL (310) 516-8000

Notice to Reader

Continued on Next Page
All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.